

CLAIMS

What is Claimed is:

1. A method of equalizing digital data signals, comprising:
demodulating an input signal having input data to produce a data output;
5 remodulating the data output to produce a training sequence, wherein the training sequence is comprised of adjacent symbols in the input data; and
generating equalizer parameters from the training sequence
2. The method of claim 1, further comprising decoding the input signal after
10 the demodulation.
3. The method of claim 2, further comprising re-encoding the input signal prior to the remodulation.
- 15 4. The method of claim 1, wherein the step of generating equalizer parameters comprises comparing the training sequence with the input signal to determine channel distortion.
- 20 5. The method of claim 4, wherein the step of generating equalizer parameters comprises subtracting the adjacent symbols from the input signal to reproduce channel impairments, wherein the channel impairments are subtracted from the input signal for equalization.
- 25 6. The method of claim 5, wherein the channel impairments comprise inter-symbol interference.
7. The method of claim 1, wherein the step of generating equalizer parameters from the remodulated data output comprises:
buffering the input signal; and

comparing the buffered input signal to the training sequence to produce the equalizer parameters.

8. An apparatus for equalizing digital data signals, comprising:
5 means for demodulating an input signal having input data to produce a data output;
means for remodulating the data output to produce a training sequence, wherein the training sequence is comprised of adjacent symbols in the input data; and
means for generating equalizer parameters from the training sequence

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9. The apparatus of claim 8, further comprising means for decoding the input signal after the demodulation.

10. The apparatus of claim 9, further comprising means for re-encoding the
15 input signal prior to the remodulation.

11. The apparatus of claim 8, wherein the means for generating equalizer parameters comprises means for comparing the training sequence with the input signal to determine channel distortion.

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12. The apparatus of claim 11, wherein the means for generating equalizer parameters comprises means for subtracting the adjacent symbols from the input signal to reproduce channel impairments, wherein the channel impairments are subtracted from the input signal for equalization.

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13. The apparatus of claim 12, wherein the channel impairments comprise inter-symbol interference.

14. The apparatus of claim 8, wherein the means for generating equalizer
30 parameters from the remodulated data output comprises:

means for buffering the input signal; and
means for comparing the buffered input signal to the training sequence to produce the equalizer parameters.

- 5 15. An apparatus for equalizing digital data signals comprising:
a demodulator for demodulating an input signal to produce a data output;
a modulator, communicatively coupled to the demodulator, for remodulating the data
output to produce a training sequence, wherein the training sequence is comprised of
adjacent symbols in the input data; and
10 a parameter generation module, communicatively coupled to the modulator, for
generating equalizer parameters from the training sequence.

16. The apparatus of claim 15, further comprising a decoder for decoding the
input signal after the demodulation.

15 17. The apparatus of claim 16, further comprising a re-encoder for re-encoding
the input signal prior to the remodulation.

18. The apparatus of claim 15, wherein the parameter generation module
20 compares the training sequence with the input signal to determine channel distortion.

19. The apparatus of claim 18, wherein the parameter generation module
subtracts the adjacent symbols from the input signal to reproduce channel impairments,
wherein the channel impairments are subtracted from the input signal for equalization.

25 20. The apparatus of claim 19, wherein the channel impairments comprise
inter-symbol interference.

21. The apparatus of claim 15, wherein the parameter generation module
30 comprises:

means for buffering the input signal; and
means for comparing the buffered input signal to the training sequence to produce the equalizer parameters.

- 5 22. A blanket equalizer for equalizing digital data signals, comprising:
 a transversal filter for receiving a reconstructed symbol sequence from another
equalizer and for filtering the reconstructed symbol sequence; and
 an adder for summing an input signal and the filtered reconstructed symbol
sequence output from the transversal filter to create an estimated symbol sequence.

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23. The blanket equalizer of claim 22, wherein the input signal is filtered by a
matched filter and the matched filter's output is input to the adder.